MUNICIPAL HOSPITALS FOR CONTAGIOUS DISEASES

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There can be no doubt that the most important progress in medicine and in social economy during the last three decades has been in the prevention of disease. Not only have communities awakened to the fact that by applying the best principles of preventive medicine we can avoid the spread of disease and prevent its ravages, but that in so doing the people of the community are benefited in other material ways. And in no way is the saving of life and the improvement in the general welfare of the people at large better demonstrated than in the results achieved in the handling of contagious diseases in the municipality of to-day.

A most essential part of the equipment of a city in the battle against contagious diseases is an adequate hospital or series of hospitals for contagious diseases.

This is a statement which may be accepted as axiomatic,—yet how slow have the cities of all countries been to appreciate this fact. The first hospital for contagious diseases in general was opened in Glasglow in 1865 and in London in 1871, (Osler). The latter city has now nine hospitals for contagious diseases and one convalescent home—a very proper recognition of their importance.

Why is a municipal hospital for contagious diseases of such great importance? We may state that it is so for several reasons. The most important are:

1. The lack of adequate facilities for treatment of contagious diseases in many homes.
2. The difficulty of securing proper quarantine at home.
3. The nearer approach to absolute isolation in a properly conducted hospital.
4. The far smaller disturbance caused to business and social intercourse when a case of contagious disease is removed to the hospital.

1. The lack of adequate facilities for treatment in many homes cannot be questioned. In Philadelphia in 1910 of 1,925 cases of Scarlet Fever, 1219 were treated in the Hospital for Contagious Diseases. There is no

doubt that the great majority of the patients came from homes where the conditions as to general hygiene, food and medical attention must of necessity have been far less favorable to the patient's recovery than they were in the hospital. In 1910 in Philadelphia of 3,804 patients who had diphtheria, 2,235 were treated in the hospital and 1,569 at home. The mortality of the hospital cases was less than half of those treated outside. This does not in any way reflect upon the medical attendants in whose hands the home cases were. It merely demonstrates that in a hospital the conditions are far superior. The patients are under control—emergencies can be promptly met—facilities for the giving of antitoxin, for tracheotomy and intubation are at hand, and the physicians in charge know that proper food is being given these patients. It requires but a glance at some of the homes from which patients are brought to all Municipal Hospitals for Contagious Diseases to appreciate the fact that for a child to be stricken with a severe disease in one of them and be compelled to remain at home would be equivalent to sentencing it to death.

2. The difficulty of securing proper quarantine at home is a matter of great importance and while not entirely within the scope of our discussion upon the hospital itself, still furnishes one of the great reasons for the hospital's existence, and with the other factors mentioned will be discussed somewhat more in detail in another part of this paper.

Granted then, that a Municipal Hospital for Contagious Diseases is a necessity we may consider it from several standpoints. To me the important matters are

1. The relation of a Municipal Hospital to the Community.
2. The relation of the Municipal Hospital to the individual.
3. The ideal hospital for contagious diseases.

1. The relation of the Municipal Hospital to the community has already been alluded to in discussing the necessity for its existence, and while a great reason for this is the inability of any one properly to care for most of the patients in their home environment, yet the greatest need of the community for a hospital for contagious diseases lies in the fact that it provides isolation, and by isolation only can ideal protection to the public from infected individuals be obtained. Home quarantine must always be faulty because of several factors which depend so entirely upon human nature itself as to be practically ineradicable. First of all we have to deal with the ignorance of parents, friends and relatives concerning the gravity of infectious diseases and the mode of their spread. Then again much of the harm in the spreading of truly contagious diseases such as scarlet fever, measles and diphtheria may be attributed to pure carelessness on the part of those who at one time or another come into contact with the patient. But finally and most important of all we have to deal with,

the innate selfishness of most individuals and their indifference to the welfare or health of the people in general. It seems that people are prone to wilfully conceal the presence of contagious diseases in their homes and to do everything possible to withhold such information from the public. They seem to consider the action of the health authorities as an interference with their rights as citizens. In part this feeling may be due to the deep rooted fear of hospitals dating to a period when they really were places to be dreaded. Yet in part it is due to a certain perverseness, present in greater or lesser degree in all human beings which leads all persons to resent aid from all authorities as an unwarranted infringement on their rights. In short their whole attitude may be stated to show a lack of the altruistic spirit.

In communities in temperate climates such as we find in all the cities of the United States and practically all of those in Europe, the definite contagious diseases with which a municipality must deal in a hospital are Scarlet Fever, Diphtheria and Measles. The first two are eminently suitable for hospital care. Measles, a far more serious disease than is generally supposed might also well be treated thus, were it not for its wide prevalence in epidemics and a positive refusal on the part of both the medical profession and the laity to regard it as anything but one of the very minor ailments of childhood.

A hospital for contagious diseases in order to properly fulfill its function towards the community must be prepared to deal with these diseases efficiently and to prevent their spread throughout that community.

The accommodations therefore must be adequate. Abroad it has been found necessary to have 9–10 beds per 10,000 of population and this is probably a minimum, (Osler). Moreover it should not be thought necessary that cases should be sent into the hospital whether they are proper ones or not. It is a great mistake to allow the sending in of moribund cases, except under unusual circumstances, for they tax the capacity of the hospital without any adequate return to the community or to the individual. The admission of patients should be left entirely to properly trained physicians upon the ambulance of the hospital in conjunction with a corps of competent diagnosticians, whose duty it is to examine and diagnose the cases.

To crowd wards barely adequate with others in whom it is easy to see that no contagious element exists is wrong from every point of view. It not only hampers the work of the hospital but exposes previously non-infected patients to the danger of contagion. I consider that a large part of the success of the municipal institution in Boston has been due to this very discrimination in accepting cases. In the year ending January 31, 1910, of 3192 applicants for admission, 328 were rejected because of the absence of infectious disease. A hospital for contagious diseases has also a very

definite capacity for handling patients. When this is exceeded none of those under treatment can receive the proper care or attention. Better where there is room for 100 cases take 100 and care for all properly than to admit 125 and care for none to the very best advantage. Overcrowding in a general hospital is a serious menace to the welfare of the patients—in an institution for the care of contagious cases it makes good care impossible. Therefore it is evident that in an adequate hospital of this kind there must always be a considerable excess of room and facilities over that which is needed upon ordinary occasions, for there are sure to be periods of extraordinary prevalence of one or other of the diseases to be cared for, not to mention the ever-threatening danger of cross-infections. It is true that this tends to make such a hospital even more expensive than it always must be, yet to save money by limiting accommodations would be to save it at the expense of many lives.

It is not necessary that a hospital for contagious diseases should be in the outskirts of a community. There is a common impression that a central location of such a hospital would tend toward the dissemination of disease in its immediate environment, but this view has been abundantly disproven by experience. However in view of the need of much ground for the proper construction of such a hospital it will usually be found far more feasible to place it some distance away from the central districts of the city.

The points in which a hospital touches upon the interests and rights of the community at large are then very plain. Its advantages are manifest—if it be conducted in a manner which experience has shown to be the best.

But while primarily the hospital is for the protection of the community against the spread of contagious disease there are several important features in its relation to the patient.

2. The relation of a hospital for contagious diseases to the individual is in every way as worthy of consideration as its relation to the people in general. There are several duties which the hospital owes to its patients. Primarily they are:

1. The best of care and treatment for the disease from which the patient is suffering.

2. Protection from other diseases which are treated at the hospital.

3. Protection from other diseases which patients may bring into the institution.

Good care and treatment for any disease depend upon the possession of proper facilities and room for the accommodation and treatment of the patient. As has been stated this is true in the very largest degree of patients suffering from contagious diseases. In these, such are included as the proper handling of any and all complications which may arise during

the course of the disease and also the patient's discharge in a condition in which he is not a menace to others. I have already mentioned this point in a discussion of the relation of the hospital to the community and shall return to it when discussing the actual arrangement of the hospital.

2. When a patient is admitted suffering from a certain disease it is important that during his stay he should be protected from other diseases treated at the institution. We have no right to take a patient suffering from diphtheria for instance and expose him to infection with scarlet fever or vice versa. As McVail so forcibly puts it we must secure for the patient isolation and protect him from aggregation. In order to protect the patient to the utmost it is important that the promiscuous herding of patients even of those suffering from the same disease, should be avoided. It is of course impossible to achieve the ideal i. e. the isolation of individual patients. The cost of such a procedure puts it out of the question. We can, however, procure isolation to such an extent that our wards do not become hotbeds of infection of various kinds.

It is equally important to protect patients, suffering from any one disease, from diseases which other patients of the same group may be incubating. Thus a diphtheria patient on admission may be in the incubation period of scarlet fever or measles and the infectiousness of these diseases in their initial stages is well known. The arrangements to secure such isolation are various and will further on be discussed in greater detail. Particularly in addition to the contagious diseases we should observe in female children the presence of a vaginitis and if possible such cases also must be isolated.

Therefore, understanding that it is the duty of a municipal hospital to protect the community from patients suffering with contagious diseases while they are ill, to give the patients the best possible care, to protect the patients from double infections, and to send them home harmless, we are ready to consider in detail the ideal hospital for contagious diseases.

The ideal Municipal Hospital approaches as nearly as possible entire isolation of patients. Absolute isolation is impossible, but it is our duty to get as near to it as is possible. Isolation hospitals are more expensive than any other kind because the ratio of patients to attendants is of necessity small if the patients are to be properly cared for and protected one from the other. Therefore economy must be especially considered; not the economy which says "A penny saved is a penny made," but rather that which says "A penny judiciously spent is a penny earned." Isolation is preventive medicine in its fullest and most practical sense, therefore all expenditures, judiciously made, ultimately mean an enormous saving in life, health, and money to the community. In other words a dollar spent to-day in preventions means many dollars saved to-morrow in treating the actual disease.

Hospitals for contagious diseases above all things to accomplish the most

good for the money spent must be conducted to secure "isolation and to avoid aggregation." Ineffective isolation brings cross infections and the hospital becomes a distributing center for all the diseases in the hospital. Crowding therefore is a most dangerous and harmful policy. It is avoided by providing sufficient accommodation and by carefully choosing proper cases for admission.

A modern hospital must be upon a large plot of ground and must include beside administration buildings, a series of pavilions for each disease to be treated, with lots of air space between wards and open air corridors and walks connecting them.

The essential portions of a hospital for contagious diseases are an observation or reception pavilion, wards for acute cases, and wards for convalescent cases. Equally important are proper ambulance facilities, an adequate exit building and a combined laundry and disinfecting station.

The observation or reception pavilion should consist of a series of as many isolated rooms with individual bath and toilet arrangements as it is possible to secure. These rooms should be separated by open corridors running at right angles to each other to allow the free circulation of air. These rooms should be so constructed that glass enters largely into the formation of the walls. This serves several purposes, the chief of which is that it enables one attendant to care for and keep under observation several rooms at one time. Moreover by allowing the patients to see each other and still be unexposed, it does away with the loneliness and depression of complete isolation. For the ideal hospital such a building could be utilized by admitting each patient separately into what would be an individual ward and retaining him there until he had safely passed the incubation period of diseases other than that for which admitted. Such an arrangement is hardly practicable because of the forbidding expense. Therefore such a building will find its use limited to the isolation and observation of cases of doubtful diagnosis, for cases with known contagious disease but previously exposed to others, and for the treatment of a limited number of crossed infections, thus doing away with the expense of operating a regular emergency ward.

A further important use to which such a pavilion may be put is in the aborting of outbreaks of cross-infections. Thus it is our experience that a case of measles or chicken-pox developing in the scarlet fever or diphtheria ward, though recognized at the earliest possible moment will infect some, but not all of the susceptible individuals exposed. Unless active measures be taken all susceptibles will ultimately become infected. Obviously the procedure is to isolate all susceptibles one from the other with the certainty that the crop, following the original infecting case will be the total extent of the outbreak.

In the observation building should be situated the receiving rooms, two in number, one to be in readiness always for emergency.

Acute wards should be so constructed as to limit the number of patients in each to not more than six. This serves to reduce to a minimum the dangers and disasters of cross infections.

Convalescent wards, to which patients should be admitted not before they have safely passed the incubation period of other infections, may be larger, holding as high as twenty beds.

Each ward should be equipped with a complete discharge or exit bath consisting of three separate parts—one in which the patient is divested of his clothing, a middle one in which he gets his final bath, and a third or perfectly clean part in which he is dressed in clean clothing handed in from the outside. This I consider a much better arrangement than making this a part of the general exit building inasmuch as it does away with the final mingling of many individuals from different wards and so further tends to promote isolation.

Ideal ambulance service means a clean ambulance, clean blankets, clean bedding, and one patient at a time.

A combined laundry and sterilizing plant should consist of three compartments, a middle one into which all unclean articles are placed, thence to be inserted into sterilizers and boilers built into the walls and opening after the process of cleansing is completed, into the clean rooms on either side.

Suitable and separate dormitories should be provided for the doctors, nurses and attendants. For their accommodation a general exit building on the same three-room principle as the smaller ones mentioned for discharge in connection with the wards, is essential.

The feeding of all can be looked after from a general kitchen, separate dining rooms being provided for doctors, nurses and male and female attendants. By means of food trucks all departments and wards of the hospital may be given safe and perfect service from this same kitchen.

In summing up we may state that the contagious hospital which most nearly fulfills its perfect function is that which attains to its fullest possible extent perfect isolation.